

ABSTRACT

The present invention provides for an improved scanning process having a first stage to rapidly identify a threat location and a second stage to accurately identify the nature of the threat. The improved scanning process maintains a high degree of accuracy while still providing an operationally desirable high throughput. The present invention also uses improved processing techniques that enable the substantially automated detection of threats and decrease the dependence on operator accuracy. One embodiment of the present invention provides an apparatus for identifying an object concealed within a container. It comprises a first stage inspection system having at least two X-ray projection systems to generate a first set of data and a plurality of processors in data communication with the first stage inspection system. The processors process the first set of data to generate at least two images. The two images are used to identify at least one target region from the two images. A second stage inspection system is then used to generate an inspection region which is then positioned relative to the target region and made to at least partially physically coincide with the target region. A second set of data is produced specifically from the inspection region, data which have a high degree of specificity for the material in the inspection region.